

Please amend the above-identified application as follows:

In The Specification 7

At page 1, line 15, please delete "and" and insert
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At page 1, line 15, after "Serial No. 737,899
filed July 26, 1991", please insert --and Serial No.
739,143 filed August 1, 1991--.

IN THE CLAIMS

Please cancel claims 1-42.

Please enter new claims 45-82.

--45! A recombinant plant viral nucleic acid
derived from a plus sense, single stranded RNA plant
virus that naturally has a subgenomic promoter, the
recombinant plant viral nucleic acid comprising:

a first viral subgenomic promoter operably joined
to a first nucleic acid sequence that codes for a
plant viral coat protein wherein the transcription
of the first nucleic acid sequence is regulated by
the first plant viral subgenomic promoter; and

a second plant viral subgenomic promoter operably
joined to a second nucleic acid sequence which is
not naturally associated with said plus sense
single stranded RNA plant virus wherein
transcription of the second nucleic acid sequence
is regulated by the second plant viral subgenomic
promoter;

~~wherein the first and second viral subgenomic promoters
possess different nucleic acid sequences thereby~~

enabling the recombinant plant viral nucleic acid to systemically transcribe the second nucleic acid in the host plant.

46. A recombinant plant viral nucleic acid of claim 45² wherein the first plant viral subgenomic promoter is naturally associated with said plus sense single stranded RNA plant virus.

47. A recombinant plant viral nucleic acid of claim 46² wherein the nucleic acid sequence that codes for a plant viral coat protein is naturally associated with said plus sense single stranded RNA plant virus.

48. A recombinant plant viral nucleic acid of claim 46² wherein the second plant viral subgenomic promoter is not naturally associated with said plus sense single stranded RNA plant virus.

49. A recombinant plant viral nucleic acid of claim 45² wherein the first plant viral subgenomic promoter is not naturally associated with said plus sense single stranded RNA plant virus.

50. A recombinant plant viral nucleic acid of claim 49⁵ wherein the nucleic acid sequence that codes for a plant viral coat protein is naturally associated with said plus sense single stranded RNA plant virus.

51. A recombinant plant viral nucleic acid of claim 49⁷ wherein the second plant viral subgenomic promoter is naturally associated with said plus sense single stranded RNA plant virus.

52. A recombinant plant viral nucleic acid of claim 45⁸ further comprising a third¹ subgenomic promoter and a¹

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~~third nucleic acid sequence wherein the third subgenomic promoter possesses a different nucleic acid sequence than the first and second subgenomic promoter,~~ thereby enabling the recombinant plant viral nucleic acid to systemically transcribe the third nucleic acid in the host plant.

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53. A recombinant plant viral nucleic acid of claim 45 wherein the recombinant plant viral nucleic acid is selected from the group consisting of tobamoviruses, bromoviruses, tobamoviruses, furoviruses, cucumoviruses, hordeiviruses, potexviruses, tymoviruses, luteoviruses, carmoviruses, tombusviruses and sobemoviruses.

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54. A recombinant plant viral nucleic acid of claim 53 wherein the recombinant plant viral nucleic acid is a tobamovirus.

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55. A recombinant plant viral nucleic acid of claim 54 wherein the recombinant plant viral nucleic acid is a TMV virus.

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11 56. A host plant infected by the recombinant plant viral nucleic acid of claim ~~45~~.

12 57. A host plant infected by the recombinant plant viral nucleic acid of claim ~~46~~.

13 58. A host plant infected by the recombinant plant viral nucleic acid of claim ~~47~~.

14 59. A host plant infected by the recombinant plant viral nucleic acid of claim ~~48~~.

15 60. A host plant infected by the recombinant plant viral nucleic acid of claim ~~49~~.

~~61~~¹⁶ A host plant infected by the recombinant plant viral nucleic acid of claim ~~50~~.

~~62~~¹⁷ A host plant infected by the recombinant plant viral nucleic acid of claim ~~51~~⁷.

~~63~~¹⁸ A host plant infected by the recombinant plant viral nucleic acid of claim ~~52~~⁸.

~~64~~¹⁹ A host plant infected by the recombinant plant viral nucleic acid of claim ~~53~~⁹.

~~65~~²⁰ A host plant infected by the recombinant plant viral nucleic acid of claim ~~54~~.

~~66~~²¹ A host plant infected by the recombinant plant viral nucleic acid of claim ~~55~~¹⁰.

~~67~~²² A process for systemically transcribing a nucleic acid sequence in a host plant comprising:

(a) infecting a host plant with a recombinant plant viral nucleic acid derived from a plus sense, single stranded RNA plant virus that naturally has a subgenomic promoter, the recombinant plant viral nucleic acid comprising:

a first viral subgenomic promoter operably joined to a first nucleic acid sequence that codes for a plant viral coat protein wherein the transcription of the first nucleic acid sequence is regulated by the first plant viral subgenomic promoter; and

a second plant viral subgenomic promoter operably joined to a second nucleic acid sequence which is

not naturally associated with said plus sense single stranded RNA plant virus wherein transcription of the second nucleic acid sequence is regulated by the second plant viral subgenomic promoter;

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wherein ~~the first and second viral subgenomic promoters possess different nucleic acid sequences~~ ^{A3} thereby enabling the recombinant plant viral nucleic acid to systemically transcribe the second nucleic acid in the host plant; and

(b) growing the infected plant wherein the second nucleic acid sequence is systemically transcribed.

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²² 68. A process according to claim ~~67~~ ²¹ which further comprises isolating the transcribed second nucleic acid sequence.

²³ 69. A process according to claim ~~67~~ ²¹ comprising the further step of systemically expressing a protein encoded by the second nucleic acid sequence.

²⁴ 70. A process according to claim ~~69~~ ²³ which further comprises isolating the expressed protein.

²⁵ 71. A process according to claim ~~67~~ ²¹ which further comprises ~~forming~~ ^{A4} a secondary metabolite within the plant.

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²⁴ 72. A process according to claim ~~71~~ ²⁵ which further comprises isolating the secondary metabolite.

²⁷ 73. A process according to claim ~~67~~ ³¹ wherein the first plant viral subgenomic promoter is naturally associated with said plus sense single stranded RNA plant virus.

2: ~~28~~
74. A process according to claim ~~73~~²⁷ wherein the nucleic acid sequence that codes for a plant viral coat protein is naturally associated with said plus sense single stranded RNA plant virus.

~~29~~
75. A process according to claim ~~67~~²¹ wherein the second plant viral subgenomic promoter is not naturally associated with said plus sense single stranded RNA plant virus.

~~30~~
76. A process according to claim ~~67~~²¹ wherein the first plant viral subgenomic promoter is not naturally associated with said plus sense single stranded RNA plant virus.

~~31~~
77. A process according to claim ~~76~~³⁶ ~~31~~ wherein the nucleic acid sequence that codes for a plant viral coat protein is naturally associated with said plus sense single stranded RNA plant virus.

~~32~~
78. A process according to claim ~~77~~³¹ wherein and the second plant viral subgenomic promoter is naturally associated with said plus sense single stranded RNA plant virus.

~~33~~
79. A recombinant plant viral nucleic acid of claim 67 wherein the recombinant plant viral nucleic acid is selected from the group consisting of tobamoviruses, bromoviruses, tobraviruses, furoviruses, cucumoviruses, hordeiviruses, potexviruses, tymoviruses, luteoviruses, carmoviruses, tombusviruses and sobemoviruses.

~~34~~
80. A ~~recombinant plant viral nucleic acid~~ ^{Process} of claim ~~78~~²⁹ ~~33~~ wherein ~~the recombinant plant viral nucleic acid~~ is a tobamovirus.